Data Signs
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Certified System
Quality Endorsed Company
ISO9001 LIC QMS40249
SAI GLOBAL

About LED Boards

The Data Signs' Variable Message Signs (VMS) models and Speed Advisory Trailer Signs (SATS) are fitted with modular LED boards. There are different types of LED boards depending on the model of Sign they are fitted to. Each type of LED board has a different code, embossed on the LED board itself in white. The following LED board codes currently apply for the different models:

Model	Code	Description
A (Amber) 16 LED boards per Sign display.	200-7X12-1X4L Rev. 3	Diamond pixel configuration. *2 characters wide.* 340mm W x 196 mm H Used from July 2011.
A5 (5 colour) 16 LED boards per Sign display.	200-7X12-5X3L Rev. 1	2 characters wide. 340mm W x 196 mm H
B (Amber) 32 LED boards per Sign display.	320-7X6-4L Rev. 3	Diamond configuration. 270 W x 318 H mm
B5 (5 colour) 32 LED boards per Sign display.	320-7X6-YRBGW3 Ver. B	Used from July 2012. 270 W x 318 H mm
C (Amber) 32 LED boards per Sign display.	433506 Rev. F1	Has diamond configuration for each pixel. 4 LED's per pixel. Used from *March* 2012. 297 W x 347 H mm
C5 (5 colour) 32 LED boards per Sign display.	433506-17C Rev. F4	Used from January 2012. 300 mmW x 348 mmH

LED Batching

Unlike some manufacturers, Data Signs ensures that with each batch of LED boards, the LED's themselves are selected and graded at the source of manufacture to provide uniformity of output across all LEDs in the Sign (as per Australian Standard AS4852.2 2009, Section 3.1.3).

Each LED board contains a batch number label on the back. The batch number starts with a '**W**'. Therefore, LED boards of the same batch will be fitted to each Sign display for colour consistency.

5 Colour LED Boards

Data Signs was the first to introduce the 5-colour LED board to the market in 2011.
The 5-colour LED board consists of a number of pixels – or dots, clusters – where each pixel contains a number of LED's for each *individual* colour; Yellow, Red, Blue, Green, White.

Another way to obtain the various colours is to combine the Red, Green, Blue (RGB) into one LED and then to combine the brightness of each of these primary colours in order to obtain the colour required. However, doing this will mean the brightness, viewing angle and the right colour required by the Australian Standard for Portable Signs (AS4852.2 2009) cannot be met. For example, section

3.2.2 3 of the Standard that describes the requirement for uniform luminance intensity (LED brightness) and section 3.2. that outlines the exact Colour requirements for each of the five colours. Most importantly, section 3.1.3 describes each LED being used for an *individual* colour which precludes the use of the combined-RGB LED.

Number of Pixels/LED's

The Data Sign's VMS products contain 48 pixels wide by 28 pixels high. For our Amber (Yellow) Signs, each pixel contains four LED's arranged in a diamond configuration. Therefore, an Amber Sign contains 5376 individual LED's. On a 5-Colour VMS by Data Signs, each of the five different colour LED's are arranged in a triangle or diamond configuration within the pixel. Therefore, there are up to 17 individual LED's in each pixel. For one 5-Colour Sign display, there are as many as 22,848 LED's per Sign.

Viewing Angle

It is important that the message can be viewed at different angles as vehicles pass by the Sign positioned on the roadside, as illustrated in the picture below. Both the Signs in the picture were running a message at the same time.


The Australian Standard for Portable Signs (AS4852.2 2009) describes the viewing angle of the LED's as the *luminous intensity half-angle*. If you draw a line directly from the Sign display as per the diagram on the next page, the LED's need to be visible from a horizontal half- angle of 6 degrees (or 15 degrees for the A/A5 model).

Getting the message across to passing traffic for as long as possible is the **key** requirement of an LED Sign, therefore the LED's used in the Data Signs products are the world's leading LED's with much higher half-angles as tested by an independent testing laboratory associated with University of Queensland:

Colour (for Model C5)	Half-Angle (horizontal)
Amber	25 °
Red	25 °
Blue	25 °
Green	25 °
White	30 °

For more details about our products please contact a Data Signs representative.

LED VMS VIEWING ANGLES
WHAT SETS DATA SIGNS APART
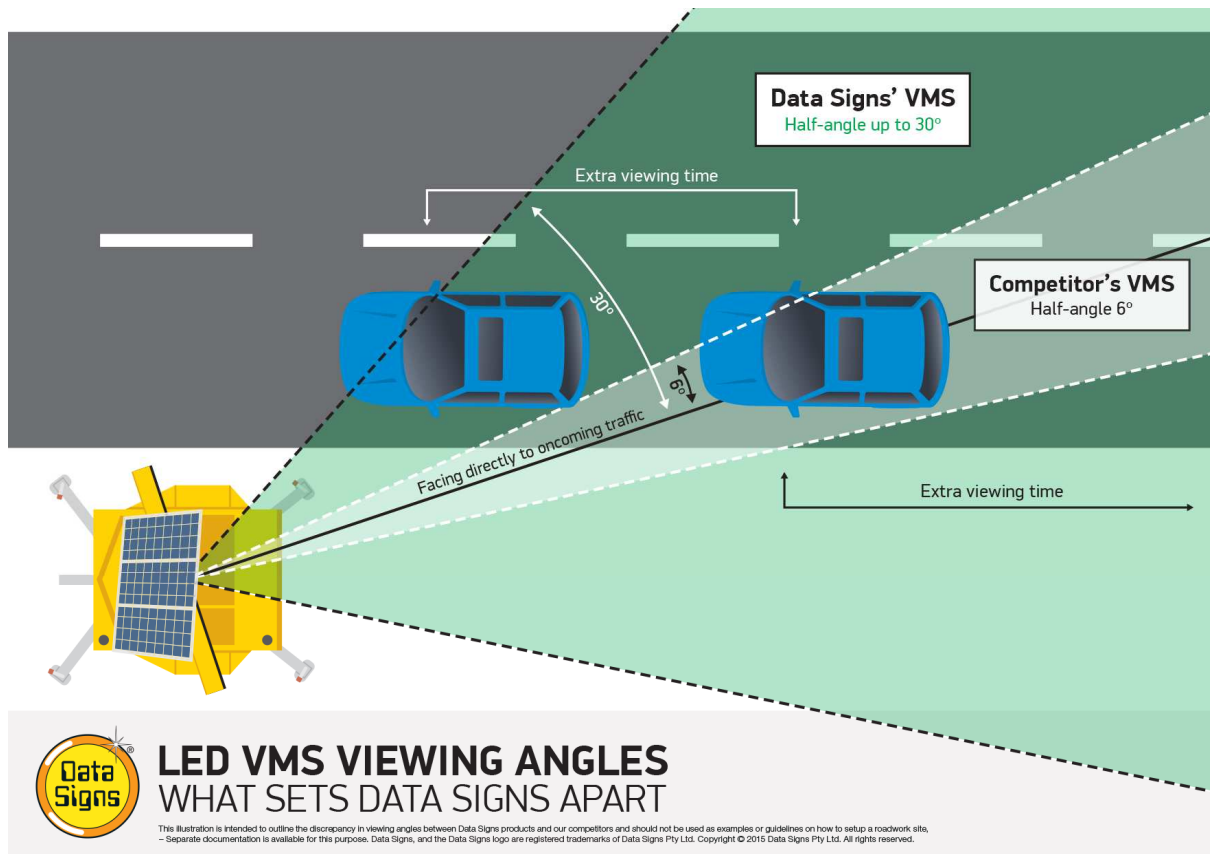
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